

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 32

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOHN D. MOON, LOUISE A. ZIEGLER, GEORGE F.
VESLEY, ROBERT C. MEHNER, MARK S. EDBERG and ROBERT D.
ANDERSON

Appeal No. 1996-1784
Application 08/131,037¹

HEARD: November 15, 1999

Before KIMLIN, OWENS and SPIEGEL, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

¹ Application for patent filed October 4, 1993. According to the appellants, the application is a continuation of Application 07/993,905, filed December 18, 1992, now abandoned; which is a continuation of Application 07/820,057, filed January 16, 1992, now abandoned; which is a continuation-in-part of Application 07/662,122, filed February 28, 1991, now abandoned.

This is an appeal from the examiner's final rejection of claims 1-18 and 20-24, which are all of the claims remaining in the application.

THE INVENTION

Appellants claim a process for producing an acrylic-based adhesive wherein about 5-95 wt% conversion of a specified monomer mixture or partially prepolymerized syrup to an acrylic copolymer is obtained in an irradiation stage at a recited relatively low radiation intensity, and then at least substantially complete conversion is achieved at a recited higher intensity. Appellants state that the multi-stage irradiation process increases the speed, relative to a one-step irradiation process, at which adhesives and acrylic-based pressure sensitive adhesive tapes having acceptable properties are produced. Claim 1 is illustrative and reads as follows:

1. A multi-stage irradiation process for the production of an acrylic-based adhesive comprising the sequential steps of:

(a) forming a solvent-free monomeric mixture or solvent-free partially prepolymerized syrup comprising:

(i) 50-100 parts by weight of at least one acrylic

acid ester of an alkyl alcohol, said alcohol containing from 1 to 14 carbon atoms;

(ii) 0-50 parts by weight of at least one copolymerizable monomer; and

(iii) a photoinitiator;

(b) irradiating the resulting monomeric mixture or partially prepolymerized syrup with electromagnetic radiation of from 280 to 500 nanometers wavelength and from .01 to 20 milliwatts per centimeter squared (mW/cm^2) average light intensity to effect conversion of from about 5-95 wt% of said monomeric mixture or partially prepolymerized syrup to an acrylic copolymer; and

(c) thereafter, further irradiating the resulting acrylic copolymer resulting from step (b) with electromagnetic radiation of from 280 to 500 nm wavelength and having an average light intensity of greater than $20 \text{ mW}/\text{cm}^2$ to at least substantially complete the polymerization reaction of said acrylic copolymer.

THE REFERENCES

Martens et al. (Martens)	4,181,752	Jan. 1,
1980		
Bartissol et al. (Bartissol)	4,404,073	Sep. 13,
1983		
Yada et al. (Yada)	4,762,862	Aug. 9,
1988		

THE REJECTIONS

Claims 1-18 and 20-24 stand provisionally rejected under

the judicially created doctrine of obviousness-type double patenting over claims 1-20, 22-26, 28 and 29 of copending Application 08/131,036. These claims also stand rejected under 35 U.S.C. § 103 as being unpatentable over Martens considered with one of Yada and Bartissol.

OPINION

Appellants do not challenge the provisional obviousness-type double patenting rejection (brief, page 5). We therefore summarily affirm this rejection.

As for the rejection under 35 U.S.C. § 103, we have carefully considered all of the arguments advanced by appellants and the examiner and agree with appellants that this rejection is not well founded. Accordingly, we reverse the rejection under 35 U.S.C. § 103.

Martens discloses a method for making a pressure sensitive adhesive by irradiating a solventless liquid mixture of at least one acrylate-type monomer, at least one copolymerizable monomer, and a photoinitiator using radiation having a wavelength of from 300 to 400 nm and an intensity of

0.1 to 7 mW/cm² until at least about 95% of the monomer has been polymerized (col. 3, lines 34-47; col. 4, lines 6-8). The acrylate-type monomers are acrylic acid esters of alkyl alcohols, wherein the alcohols contain from 4 to 14 carbon atoms (col. 3, lines 57-59), and the monomer mixture normally contains from 70 to 98 parts by weight of the acrylate-type monomer and 2 to 30 parts by weight of the copolymerizable monomer (col. 3, line 67 - col. 4, line 4). Martens teaches that he believes that the spectral distribution of the irradiation and the rate of irradiation substantially control the rate of polymerization, and that the rate of

polymerization determines the molecular weight of the copolymer

produced (col. 4, lines 21-26). Martens states that use of rates of polymerization higher than those used in his process have been found to cause the copolymers to have unduly low molecular

weights and to have sufficiently low cohesive strengths that

they are of little value as pressure sensitive adhesives (col. 4, lines 29-33).

Bartissol discloses a process for making water soluble, high molecular weight polymers and copolymers for use as flocculants for water treatment (col. 1, lines 9-13). All of the disclosed monomers for use in the process (col. 3, lines 31-37) differ from those used by Martens. The polymerization takes place in aqueous solution, and the radiation used for the polymerization has a wavelength of 300-450 nm and a mean intensity of 20 to 2,000 watts/m² (2 to 200 mW/cm²) and is applied in an increasing manner (col. 3, lines 15-26).

Yada discloses a process for preparing an acrylic polymer having excellent water solubility and high molecular weight, and states that such polymers are used as paper sizing agents, viscosity builders, waste water treating agents and precipitants

for ores (col. 1, lines 13-16). Yada's process produces cationic polymers which are either a homopolymer of a cationic

vinyl monomer having a specified formula, or a copolymer of this monomer and other water soluble vinyl monomers (col. 3, line 31 - col 4, line 2). Yada irradiates his monomers in aqueous solution first at a wavelength of 300 to 450 nm and an intensity of 10 to 15 W/m² (1.5 mW/cm²) and then at the same wavelength and an intensity of 20 to 30 W/m² (2.0 to 3.0 mW/cm²) (col. 3, lines 1-10), then irradiates the resulting polymer with radiation having a wavelength of 200 to 600 nm at an intensity of 1,000 to 2,000 W/m² (100 to 200 mW/cm²). Yada teaches that in general, the greater the intensity of light, the higher the rate of polymerization and the lower the molecular weight, and that his two-stage irradiation process produces polymers having a high molecular weight (col. 6, line 45 - col. 7, line 4).

The examiner states that Yada and Bartissol are relied upon to show that the art regularly uses processes wherein more intense light is used at the latter stages of polymerization (final rejection, paper no. 18, mailed December 2, 1994).

The examiner has not explained, and it is not apparent,

why these two references are adequate to show that the art regularly

increased the radiation intensity in the latter stages of polymerization. Regardless, the examiner must provide evidence which shows that it would have been *prima facie* obvious to one of ordinary skill in the art, when carrying out the Martens process, to increase the radiation intensity in the manner recited in appellants' claim 1. As discussed above, the Yada and Bartissol process differ from the Martens process in that they are aqueous systems, polymerize different monomer mixtures than those used by Martens, and make different products than the pressure sensitive adhesive made by Martens. The examiner has not explained why, regardless of these differences, the use of more intense light in a latter stage of the Yada and Bartissol processes would have fairly suggested, to one of ordinary skill in the art, use in the Martens process of a second irradiation stage wherein the light intensity is greater than 20 mW/cm². Moreover, the

examiner has not explained why Yada and Bartissol would have fairly suggested, to one of ordinary skill in the art, use in the Martens process of higher intensity radiation than that used by Martens even though Martens teaches that in his process, higher radiation causes the molecular weight of the polymer to be so low that it is of little value for Martens' intended use (col. 4, lines 29-37).

The examiner argues that "[t]he combination of prior art teaches a two step irradiation process and it is well within the knowledge of one of ordinary skill in the art to recognize the expected results of adjusting irradiation conditions by the teachings of the prior art of record to the effect of such irradiation and through routine experimentation" (answer, pages 4-5).

This is a vague argument which does not address the facts of the present case. In order for a *prima facie* case of obviousness to be established, the teachings from the prior art itself must appear to have suggested the claimed subject

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matter to one of ordinary skill in the art. See *In re Rinehart*, 531 F.2d 1048, 1051, 189 USPQ 143, 147 (CCPA 1976). The examiner does not explain why, regardless of the differences between the Martens process and that of Yada and Bartissol as discussed above, one of ordinary skill in the art would have combined the teachings of the references so as to arrive at appellants' claimed process. The mere fact that the prior art could be modified as proposed by the examiner is not sufficient to establish a *prima facie* case of obviousness. See *In re Fritch*, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992).

The motivation relied upon by the examiner for combining the references so as to produce appellants' claimed invention comes solely from the description of appellants' invention in their specification. Thus, the examiner used impermissible hindsight when rejecting the claims. See *W.L. Gore & Associates v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984); *In re Rothermel*, 276 F.2d 393, 396, 125 USPQ 328, 331

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(CCPA 1960). Accordingly, we reverse the rejection under 35 U.S.C. § 103.

DECISION

The provisional rejection of claims 1-18 and 20-24 under the judicially created doctrine of obviousness-type double patenting over claims 1-20, 22-26, 28 and 29 of copending Application 08/131,036 is affirmed. The rejection of claims 1-20, 22-26, 28 and 29 under 35 U.S.C. § 103 over Martens considered with one of Yada and Bartissol is reversed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

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AFFIRMED

EDWARD C. KIMLIN)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
TERRY J. OWENS))
Administrative Patent Judge)	APPEALS AND
)	
)	INTERFERENCES
)	
CAROL A. SPIEGEL)	
Administrative Patent Judge)	

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